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**North East Victoria Amateur Radio Club**

<http://nevarc.org.au/>



An Affiliated club of Wireless Institute of Australia

An Affiliated club of Radio Amateur Society of Australia Inc.



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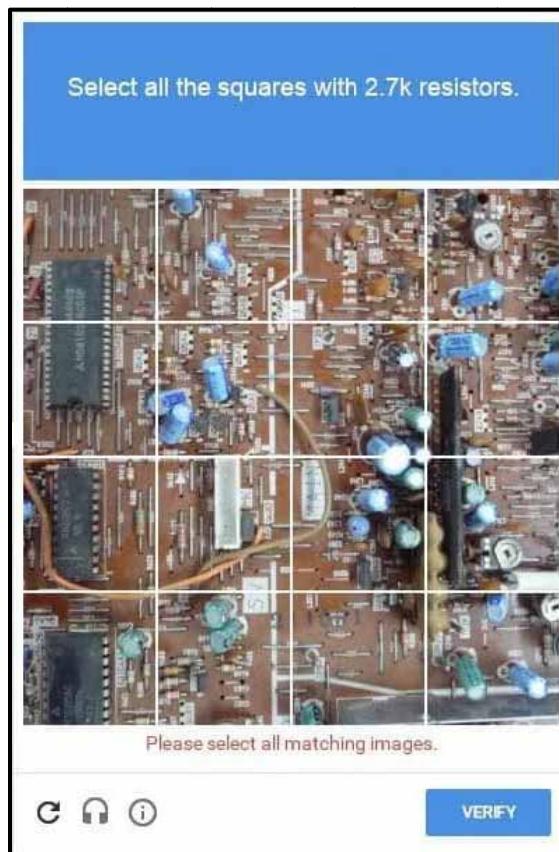
## Next Meeting in August Sunday 14<sup>th</sup>

Belvior Guides Hall

6 Silva Drive West Wodonga

Meetings start with a 12.00pm BBQ lunch

Call in Via VK3RWO, 146.975, 123 Hz



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# Ongoing VK3CH Amateur Radio Television Studio Works

The deadline of end of August looms, the 10<sup>th</sup> DATV QSO Party, on Friday 26<sup>th</sup> & Saturday 27th.

## MULTIPLE WEBCAM CHALLENGE

Each system has a limitation on the amount of bandwidth it distributes to each of its USB 3.0 ports. Particularly when multiple USB 3.0 are in use at the same time with a USB webcam or USB capture device.

Some users of vMix can connect multiple webcams on their system, however, this is rare.

A Full HD source requires the full bandwidth of one USB 3.0 port.

All computers can do 1x HD USB webcam or capture device input reliably.

Some computers are capable of doing 2x HD USB webcam or capture device inputs at optimal quality.

Going beyond this most systems are not capable of doing 3 or more HD USB webcam or capture device inputs at optimal quality. Inputting more devices may result in quality issues, dropped frames, no signal or an error message. There is no way to tell until you test it.

If you use two, make sure to use separate, distant USB ports, such as one port on the front, one port on the back of your PC.

The issue is a combination of how each individual system handles the bandwidth sent to each of the USB 3.0 ports. As well as other contributing factors such as what other USB devices you also have plugged in.

vMix say when wanting to use multiple cameras (2 or more camera), vMix recommend using a normal camera connected to a capture card installed in the system for reliable and good quality results. Or you may need to work in Standard Definition resolution instead.

## WEBCAM vMIX ERROR MESSAGES

You may receive the error message "Insufficient system resources exist to complete the requested service" when attempting to add multiple Webcams to vMix.

This error is sent to vMix by Windows and means that too many devices are sharing the same USB "bus".

To work around this issue, try the following:

1. Remove any external USB hubs from the system as these will likely prevent multiple webcams from working.
2. Connect the Webcams to USB ports as far from each other as possible, on laptops this means ports on the opposite sides of the laptop.  
On some PCs ports are available in different colours, such as Blue, Red and Yellow, plug each webcam into a different colour for best results.
3. If the above does not work, plug the webcams into Blue USB 3 ports if possible, instead of the older Black USB 2 ports.

In most cases, a PC or Laptop may only be able to handle 2 Webcams at the moment so keep this in mind. For more inputs, a capture card and video cameras will be required.

## WEBCAM HD & SD SETTINGS

The SR-Systems ATV Transmitters I have are all SD.

So not much point working the computer resources hard to process HD all along the way only to have SD transmitted live to air.

This should allow more webcams to be used in vMix.

The pixel count is another way of measuring resolution. A high-definition video has more pixels than an SD, which means that the video will be more transparent and more detailed on your HD screen. The definition for both resolutions can vary depending on who you ask. Still, typically it's somewhere between 720 and 1080 pixels per line across a widescreen display (1080p), with one pixel equalling just over three dots in width.

HD videos are at least 1280×720 or 1920×1080 resolution, while SD video ranges from 240 to 480 lines.

The higher pixel count of HD video means that there are more pixels displayed on the screen, resulting in better picture quality and detail – which is why it's called high-definition video. It also provides for faster frame rates, so motion looks smoother than with SD content.

The increased number of pixels means larger file sizes, but an increase in bit rate can somewhat offset this. In general, 720p files will have smaller dimensions (around 700 megabytes), while 1080p files might be closer to one gigabyte each depending on how long they are.

Video Resolutions: 1280 x 720 in HD & 1920 x 1080 for full HD

Aspect Ratio: 16:9

Frame Rate: 720p HD at 30 fps, 1080p at 30 fps, 1080p at 60fps, 4K at 30 fps

Audio Bitrate: 192kbps to 384kbps

SD stands for standard definition, and SD video streaming refers to video with 440 x 480 pixels resolution. SD Streaming is a video file format that displays in low-resolution.

This streaming service only supports 240p and 360p resolutions, which can be displayed on most computers or laptops without any additional software needed.

Video Resolutions: 640 x 480 pixels

Aspect Ratio: 4:3

Frame Rate: 25 fps (p) 30fps (I-), 50fs, 60fps and 24fps for a film-like quality with less motion blur

Audio Bitrate: 48 kHz at 128kbps VBR stereo AAC compression, 44.100kHz uncompressed PCM audio

Video Codecs: Mpeg-Layer III (.mpg/.mpeg) MPEG-I/II/IV(MPEG Transport Stream). H264 High Profile; Xvid Intermediate profile, VCRC Advanced Simple Profile Level One

SD streaming is much smaller in size and will not take up as much data. The amount of data used depends on the quality you are streaming at, whether SD or HD. SD video streaming typically uses 0.7 GB of data per hour.

## WHAT THE SD & HD NUMBERS MEAN

The 1080 in 1080p refers to the number of pixels comprising the video's resolution. Pixels are the little dots that make up an image, displaying its colour. Resolution is the total number of pixels in a video or image. The more pixels, the better the resolution. The better the resolution, the more detailed the video. The more detailed the video, the sharper the overall video image quality to our eyes, to a certain point (more on that later). 1080, 780, and 480 and so on denotes vertical resolution. Really, 1080 is 1920 x 1080, where 1920 part of that equation refers to the horizontal pixel count. Here are the common resolutions out there:

352 x 240 (240p)

480 x 360 (360p)

858 x 480 (480p)

**1280 x 720 (720p)** ◀ My pick for video resolution ~ Semi-HD

1920 x 1080 (1080p)

3860 x 2160 (2160p, or 4K)

Standard definition starts at 240p and ends at 480p; 720p is semi-HD; 1080p is full-strength HD; everything above this is considered Ultra-HD.

## WEBCAM SUCCESS

After changing all three webcams to different USB ports and setting all to 1280 x 720 all of them worked perfectly all at the same time without problems.

Three webcams at the same time has Video Card at 6% use.

Three webcams at the same time has computer at 4% use.

|               |               |
|---------------|---------------|
| Resolution    | 1280x720 MJPG |
| Frame Rate    | 29.97p        |
| Deinterlacing | None          |

## MORE JUNK WEBCAMS FOUND

Scrounging through the junk boxes I found the two old UVC webcams that vMix did not like.

The vMix error code gave some accepted settings, all of course below HD.

I selected a recommended resolution of 640 x 360 YUY2 50p.

Trying both on same USB hub port had them lock up and fail.

I moved the USB keyboard to the USB hub and plugged the second UVC webcam into the keyboard USB.

Both UVC webcams with quite decent video were now active.

Now we have five webcams on SD all running at the same time, with video card use up to 7%.

A very old webcam was found, only 720p very grainy, it worked so vMix can handle six webcams on SD.

But the 720p picture quality is poor, so it can go back to the junk box. I bought two more cheap webcams.

|               |              |
|---------------|--------------|
| Resolution    | 640x360 YUY2 |
| Frame Rate    | 50p          |
| Deinterlacing | None         |

I still need another video input for the switched analogue cameras in the backyard, so need another USB port. The mouse USB port may get used with the mouse going via the USB computer hub. Mouse and keyboard won't be using fast data.

## TITLE TIMINGS

The title settings require selection of the layers for different effects.

Layer 1 uses any timer settings associated with that title.

So the title will appear then self end after an amount of time.

Layer 2 will have the title remain until you cancel it.

Layer 2 would be used for scrolling text during test transmissions.





HD Webcam on a tripod for portable use, a 5 meter USB extension lead allows extra distance filming, including the 1.8 meters length of the webcam lead

## MICROPHONE ALTERATION

Speaking to some on the ATV Net, it was suggested that the big round noise shield on the microphone was only needed if I was singing into the microphone.

As I will not be doing that the shield was removed with no detectable change to the audio.

This takes up less valuable table and live to air screen space.

USB microphones process the audio data much faster than video data so your voice can be sent before your video and being out of sync which is quite annoying to watch.

vMix suggest an **80** mili-second delay, which is what I have set as a test, time will tell if that needs to change.

Microphone with three new spare 'live' webcams →  
Note the two different shack live views on vMix



## AUSTRALIA POST DRAMAS CONTINUE

I have no idea how parcels are sorted looking at the Australia Post tracking for some goods I order.

I had some webcams go to Sunshine West to Bayswater six times before getting to my local post office.

I had some leads ordered and they were taking a week to even turn up on the tracking, probably a single person warehouse business, so I ordered a few more from a different supplier in South Melbourne.

The leads ordered in South Melbourne decided to go to Tasmania for a while before coming back to me.  
Just can't win...

## FANCY TITLES A LOT OF WORK AND MONEY

Quite a few hams on Melbourne Amateur Television Group have fancy animated graphic titles with music. These play either in a loop or a once off as a station intro, often on the Tuesday night ATV Net.

I looked at Adobe After Effects and I have a legal copy at home, but version 5 dated 2001.

Looking on YouTube I found some instructions but they are using latest versions and most of the controls and features they use my version does not have. I looked up a price for a copy, over \$200, forget it.

Then I looked at some programs on the web say free, but free means watermarked productions in low resolution, the its time to send USD or Euro if you want to keep your project, always baiting methods. So I stopped looking there.

Some of Melbourne Amateur Television Group use Blufftitler. I downloaded a trial version that is watermarked. It is a learning curve to drive, most graphics design stuff is.

Blufftitler comes in three versions, Easy, Pro, Ultimate, from here <https://www.outerspace-software.com/buy>

Easy € 29.95   Pro € 49.95   Ultimate € 79.95

I will play with it for a while, but I lack the patience to learn another thing, getting the cabling in order is enough work for me at present. But if I get bored enough I may create something and if it is good enough I will have to pay for an activated copy.

I found a very basic text designer but not much animation, but it is actually free at <https://www.canva.com/>

## MORE USB PORTS

Another PCI-E USB 3.0 Port was found in the junk box.

This card has four USB 3.0 Ports.

Just one PCI-E slot remains spare on the PC, which this PCI card will use.

While another four USB ports are not required, a separate USB PCI card will ensure that any extra webcam should work if I decide to use six webcams.

The computer already had a seven port PCI-E USB 3.0 Port added.

Plus all the individual USB ports that are included on the computer, but I want to keep the two front USB slots free for uploading photos from the mobile phone or SLR camera.



## WIRELESS MICROPHONE

I bought a USB wireless microphone ages ago, but using analogue I did not input the computer to the analogue side of things much. Outside I used the audio input on my camcorder but with vMix happy with USB inputs the wireless microphone can be used outside when it suits. A USB to Ethernet converter is used either end so a long run of USB cable is avoided.

I also have a wired microphone socket on the back desk, but once vMix takes over that may be redundant. Unless I keep both the analogue and digital systems side by side, time will tell.



UHF microphone receiver  
Mounted at the back deck



USB to Ethernet Converter  
Cable run from back deck to shack



Wireless UHF  
Microphone

## ROVING MICROPHONES



Some cheap wireless microphones were purchased ages ago.  
I have not used these much, I forget how they perform.  
Each transmitter unit comes with both a lapel and headset microphone.  
They don't have a great distance but cover going around the backyard, which will do.  
The one piece of paper that comes with them is scant on details and does not say what frequency they use.  
The receiver is mounted under the table in the shack.  
But the receiver only has an analogue output.  
So there is no way to interface with vMix.

ACMA says;

*The frequency range 520-526 MHz is unused by television services and is available Australia-wide.  
However, the use of this spectrum may change as result of future replanning*

## USB HEADSET

In the junk box I found a Microsoft Life Chat LX-3000 USB Headset, long forgotten about.  
I cannot even remember why I bought them, maybe for Zoom calls years ago, before the pandemic started.



Plugging this in to the computer had vMix finding it on a restart of vMix.  
The audio was good, but I have no use for headphones as they block out my hearing.  
So I won't be using these for Amateur Television.

## LAPEL MICROPHONE

I finally bought a decent lapel microphone.

It is very compact.

They claim 80 meters range but it will cover the entire house property which will do.



It can be switched to 50 preset frequencies to avoid interference with another wireless microphone user.

The receiver 6.5mm jack is plugged into a 3.5mm adapter then into a USB to Stereo Audio Adapter, see next page for details.

With the USB to Stereo Audio Adapter, vMix can process the lapel microphone audio into the production.

The ACMA have handy instructions on using wireless microphones.

<https://www.acma.gov.au/wireless-microphones>

You can find out what frequencies you can use at the location or your address as well.

<https://channelfinder.acma.gov.au/>

From 1 January 2015 the new frequency range for legal use of wireless devices will be between 520 MHz – 694 MHz and 1790 MHz – 1800 MHz

## ANOTHER USB MICROPHONE INTERFACE OPTION



Another handy device found was this inexpensive USB to Stereo Audio Adapter.

It can input a stereo microphone and output stereo headphones.

Simple plug and play nothing to setup.

vMix sees it as a [USB Audio Device]

The rear deck wired microphone will be mixed via vMix instead of the old analogue system.  
Also gain levels with voice graphic equalization boost and an 80 milli-second delay were all added.

Rear deck audio options are now a choice, or a mix of;

- Wireless Microphone – cheap ones pictured above
- Wireless Clip On Lapel Microphone
- Wired Microphone
- Microphone integrated on a Webcam
- Microphone integrated on a Camcorder
- Wireless Headset Microphone

So the choice of transferring audio input on the camera device you are using, or using the same microphone as 'talk over' can be selected.

Backyard amateur radio television is a summertime thing, with the BBQ going, complete with BBQ Cam.

## HDMI VIDEO OUT TO CVBS DRAMAS

The replacement Digimate HDMI to RCA CVBS Composite Adapter arrived in the mail.

The other unit died after one day, no video or audio.

The replacement unit had no audio, only the video passing through.

I tried it on my TV AV monitor, but the same thing, video without sound.



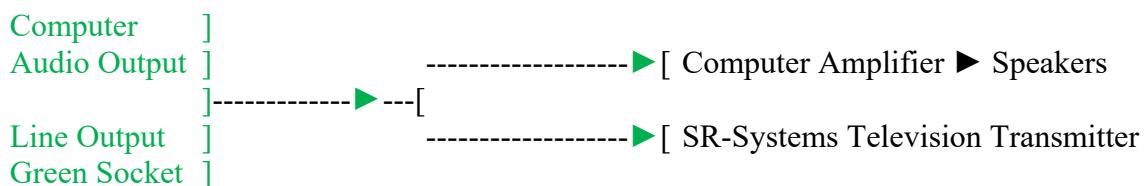
I later found that vMix was not passing the audio through the HDMI output only video which is its default.

I tried to find ways to force it to include audio but every setting I tried messed up something else in vMix.

In the end I decided to use the computer audio output.

This was simple as splitting the audio output between both the amplifier for the computer speakers and the input to the SR-Systems Transmitter.

This means the computer 'volume control' stays at maximum setting, so the room volume is changed by the physical volume knob on the speakers.



## vMix AUDIO SETTINGS

While on air on VK3RTV I had watchers advise me on my audio levels.

I noticed a great difference in the analogue audio and the vMix audio, I wanted both levels to be the same.

I was told my analogue audio was a bit rough and that vMix was much better sound, but that is because of the superior microphone vMix is using and the voice graphic equalization boost.

vMix was much softer, but a 20dB increase on the audio control panel settings had the audio level the same as the analogue on VK3RTV.



vMix Audio Settings

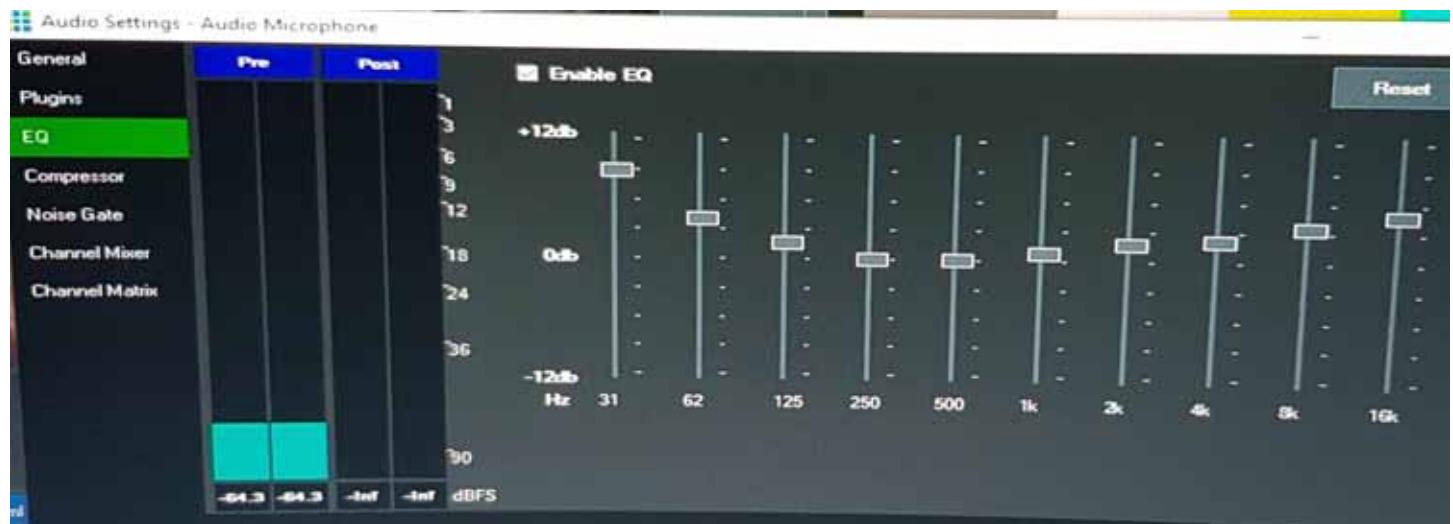


The analogue input microphone

This has since been retired with vMix now sending audio via the new USB microphone a few weeks later

## MICROPHONE GRAPHIC EQUALIZER SETTINGS

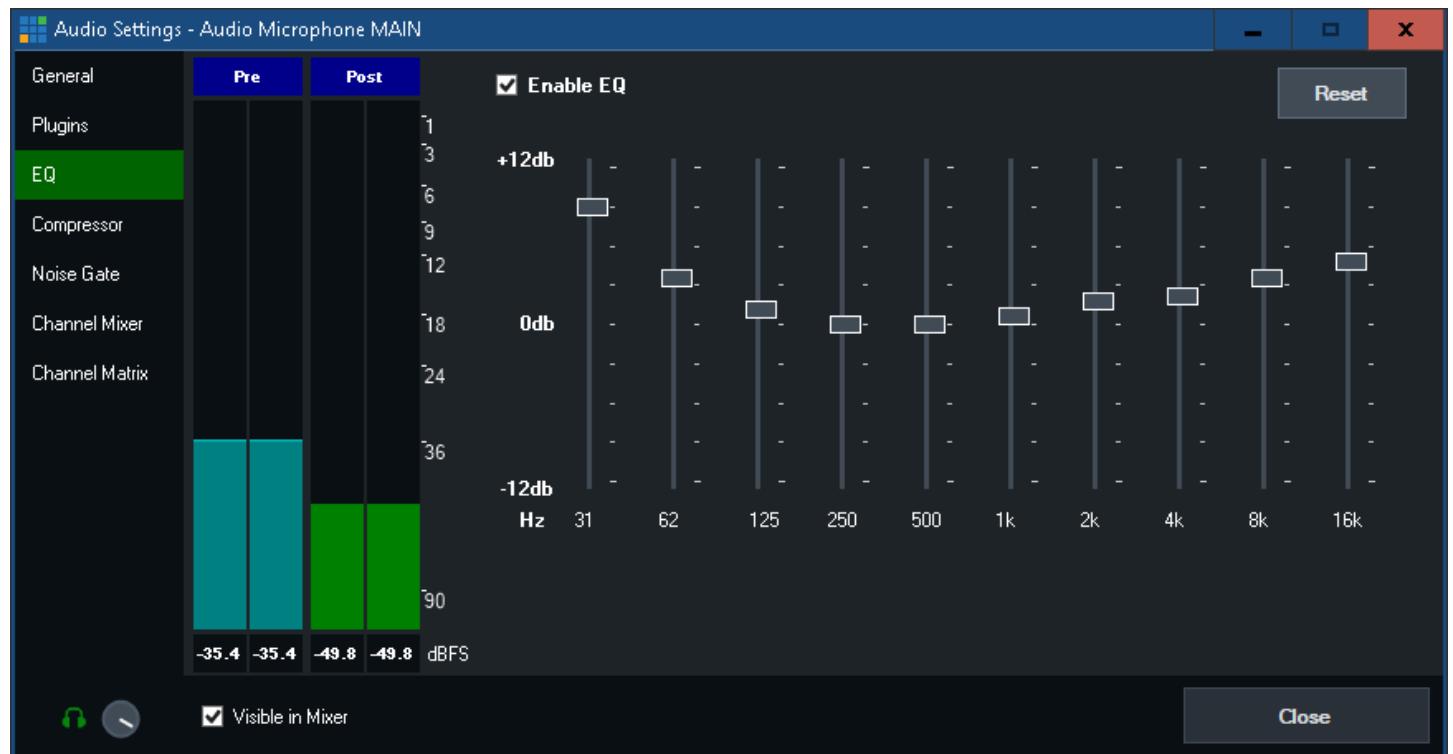
vMix allows Audio EQ mixing which can boost your talk power and improve your sound quality.



A fellow ham sent me his vMix audio EQ settings and his station has very good sounding audio. Of course his own voice, microphone and room acoustics will all come into the equation. But it was a good suggested starting point.

After some tests these settings seemed about right, the sound has a more rounded feel to it. But changes may be made as time progresses. You need to rely on reports from others, but each person's opinion of how you should sound will differ. But you can always record VK3RTV and listen afterwards and make a judgement.

Selecting Enable EQ and toggling between the two as you talk and later listen to a recorded stream from VK3RTV will give you an idea of the before (raw) and after (processed) effects.



My Audio EQ Settings in vMix

## AUDIO CONSIDERATIONS FOR PLAYING VIDEO MEDIA FILES

Playing media can be done many ways but I like the easy way.

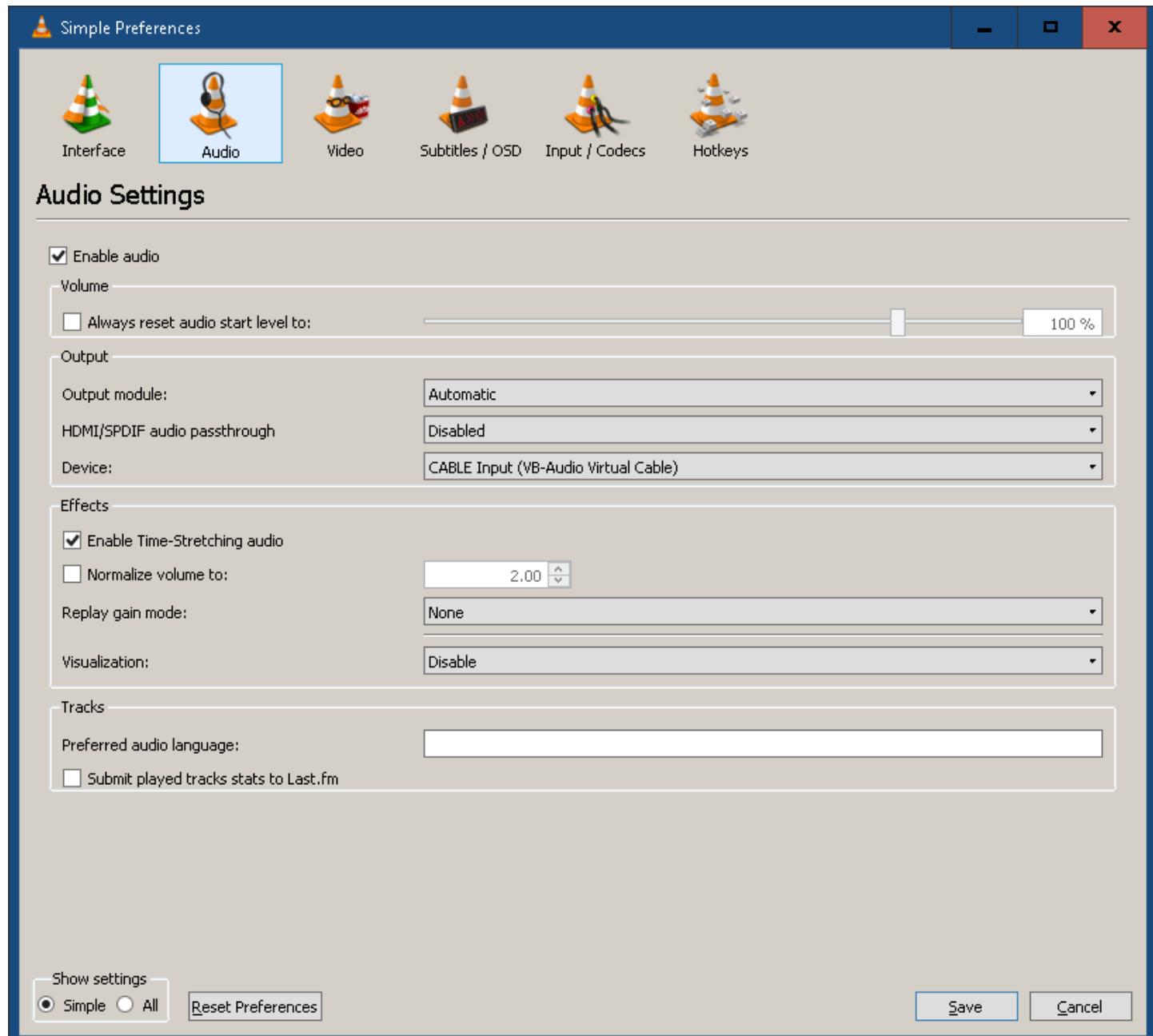
I place my video player on the right monitor [Monitor 2] and use the monitor capture to send the video out.

I use VLC to play movies to vMix.

But audio does not get sent out by default.

So I created a virtual input and assigned it the virtual cable output, 'VB-Audio Virtual Cable'.

Then the virtual cable input was selected on VLC as the default audio device.



VLC Audio Settings with 'VB-Audio Virtual Cable' selected as the default playback device  
These settings need to be saved in VLC, anytime you play a media file on Monitor 2, vMix will get the audio

# USB PORT CONNECTION DIAGRAM – Version 1 – 2022 10<sup>th</sup> DATV QSO Party

Each USB Port can only cope with one webcam, so each USB port has one webcam attached.  
If anything is unplugged or moved to a different USB socket, vMix must be reprogrammed for that device.

## PCI-E USB 3.0 Port – 7 PORTS – HUB – One Webcam Only Allowed

|       |       |   |
|-------|-------|---|
| USB 1 | 3.0 ] | Streamdeck XL   |
| USB 2 | 3.0 ] | USB to Stereo Audio Adapter – Lapel Wireless Microphone           |
| USB 3 | 3.0 ] |   |
| USB 4 | 3.0 ] |   |
| USB 5 | 3.0 ] | Webcam #2 Logitech C930e – Shack Right                            |
| USB 6 | 3.0 ] | USB Microphone #1 Shack Main                                      |
| USB 7 | 3.0 ] | USB External Hub Shack – Powered USB 3.0 Hub – No webcams allowed |

## PCI-E USB 3.0 Port – 4 PORTS – HUB – One Webcam Only Allowed

|       |       |   |
|-------|-------|---|
| USB 1 | 3.0 ] | Computer Keyboard   |
| USB 2 | 3.0 ] | Computer Mouse  |
| USB 3 | 3.0 ] | USB Microphone #2 TX Unit Rear Deck & Deck Webcam #7 Occasional use |
| USB 4 | 3.0 ] | USB to Stereo Audio Adapter – Rear Deck Wired Microphone Temporary  |

## COMPUTER REAR – 5 PORTS – INDIVIDUAL – Multiple Webcams Allowed

|                 |       |   |
|-----------------|-------|---|
| USB Top Left    | 2.0 ] | Webcam #4 UVC – Shack Room Overview                                   |
| USB Top Right   | 2.0 ] | Webcam #3 UVC – Shack Table View – 180 degrees vMix rotated corrected |
| USB Middle      | 3.0 ] | Webcam #1 Logitech C930e – Shack Main                                 |
| USB Lower Left  | 3.0 ] | Webcam #5 Logitech C930e – Green Screen Chroma Keyed Webcam           |
| USB Lower Right | 3.0 ] | Audio Visual to USB 2.0 – Composite Video [CVBS] Capture Device       |

## COMPUTER FRONT – 2 PORTS – INDIVIDUAL – Multiple Webcams Allowed

|   |       |   |
|---|-------|---|
| 1 | 2.0 ] | Reserved – Mobile Phone & Camera #8 Photo File Transfers Occasional use |
| 2 | 2.0 ] | Reserved – Webcam #6 C930e – Tripod Mount for Occasional Portable use   |

## ADDED BONUS

As the outside wireless microphone sends its data via a USB to Ethernet converter, I plugged in a webcam to see if video data would go through effectively and it did. The Ethernet converter has four USB slots. So one less cable to run under the house.

One webcam can be sent direct to vMix from outside, with audio if required.

But considering no focus ability a webcam would only be for close shots on a tripod, but better than nothing.

**7 PORTS – EXTERNAL SHACK HUB – No Webcams Allowed**

|       |       |                          |
|-------|-------|--------------------------|
| USB 1 | 3.0 ] | Printer                  |
| USB 2 | 3.0 ] | Flatbed Document Scanner |
| USB 3 | 3.0 ] | Vacant                   |
| USB 4 | 3.0 ] | Vacant                   |
| USB 5 | 3.0 ] | Vacant                   |
| USB 6 | 3.0 ] | Vacant                   |
| USB 7 | 3.0 ] | Vacant                   |

**4 PORTS – ETHERNET TO USB OUTSIDE REAR DECK HUB – One Webcam Only Allowed**

|       |       |   |
|-------|-------|---|
| USB 1 | 2.0 ] | USB Audio Device – Wired Microphone #2 Deck                       |
| USB 2 | 2.0 ] | Wireless Microphone TX Unit Rear Deck                             |
| USB 3 | 2.0 ] | Keyboard – Occasional use – remote control of vMix from rear deck |
| USB 4 | 2.0 ] | Deck Webcam #7 Occasional use                                     |



External 7 Port Powered Hub underneath the table

Old Analogue Microphone now removed as vMix controls audio with new USB Microphone





The spare microphone on the extendable stand, a very handy option  
Can be used outside without needing a separate microphone stand



The microphone mixer preamplifier is also now redundant, may get used outside in future it is a 2 channel unit



The microphone mixer preamplifier with cables going to the video switcher  
Audio could be switched either on, with analogue video, or audio always on, as 'talk over' mode  
vMix now deals with all this, now even more cables to recover from underneath the table

## ANOTHER USB AUDIO CAPTURE DEVICE FOR OUTSIDE



Another USB Audio Capture Device was purchased and installed at the rear deck.

This uses one of the 4 USB Ports that go back to the radio room via Ethernet cable.

A meter length of USB extension cable was run to install it underneath the roof to keep the rain off it.

It also had audio equalization and gain boost settings done.

An 80 millisecond delay also added.

The gain had to be wound up as there is some loss due to the Ethernet cable run back to the radio room.

The gold 6.5mm to 3.5mm adapter is left on the microphone so it is not lost and to keep that out of the rain from outside.

← The microphone under test as vMIX sound settings done



## AUDIO OPTIONS FOR OUTSIDE BROADCASTING

While improving audio options inside the shack radio room, attention was also given to outside. I don't often transmit from outside in the cold weather but summer is another situation.

A mix of handheld leaded and wireless microphones were available, but just two at any one time. So now that vMix gives a USB audio option this was added outside as well.

Even a dedicated microphone to capture the food sizzling on the grill could be included, but the microphone might get coated in oil and food fat splashes after a while... depends how crazy I want to go with it all...

I got the microphone stands for free, they were destined for the rubbish, I was at the right place, right time.



Two wired microphones on stands, a wireless silver top microphone and a lapel clip on microphone  
Hopefully the rear deck is covered for audio, along with any camcorder or webcam audio as well

## **ANALOGUE TO DIGITAL OR KEEP BOTH**

vMix is supposed to run everything perfectly and put analogue switching in retirement. But my experience with computers is everything does not always run smoothly. I initially decided to retain a hybrid system for amateur television.

The main option required is the ability of the SR-Systems Transmitter to choose between vMix video and audio switching output or the analogue switching of video and audio output.

Analogue switching behaves well and I am used to dealing with it for amateur television. The biggest hassle is getting analogue composite video into vMix. It also involves lots of video leads ending up messy when more keep getting added.

As CVBS video is so old not much in the way of capture cards that are cheap exist. All the ones I see online are second hand so always the risk of a dead on arrival purchase.

A cheap option to keep both systems is a simple 2 way AV switcher. But the easy way is use the Six Way AV switcher. So input number 1 was chosen as vMix computer output, ready to send to the input of the SR-Systems TX.

But later I made the decision to take out all the old analogue switching, many leads were reclaimed. The cables behind the transmitter are now less than half what they were, so much neater now. VMix now controls the whole show.

## **KEYBOARD CONTROL**

vMix can be controlled many ways.

Dedicated keyboard controllers called X-Keys can have buttons assigned to any function and vMix can be setup to respond with different coloured lights on the key to indicate the requested function.

But a standard computer keyboard can be used as well, saving some cash.

X-Key controllers are not cheap.

Keyboard, Web Interface (use any web enabled device to control vMix, including your mobile phone), Control Surface, MIDI / X-Keys, Contour Design ShuttlePROv2 and Elgato Stream Deck / Stream Deck Mini.

vMix can be controlled via the mouse, but once many webcams and intros and outtakes and station logo videos and presentation videos all take up screen space it is hard on the fly to select the desired input in time.

Assigning frequently used studio editing options makes life easier.

Each webcam and station logo video are assigned a key. Other functions like cut, fade and audio switching were also assigned keys.

A cheat sheet of shortcuts was printed and laminated for quick reference. Over time you just learn them by heart.

To control vMix remotely, vMix allows you to control your production via a device that's connected to the same network as your vMix computer. This is done through the vMix Web Controller. The outside analogue cameras can be switched locally via the 8 way push button switcher.

## CHEAP KEYBOARD vMIX CONTROL

While vMix can be operated with the mouse it can get a bit messy and difficult when you are on air trying to do your presentation.

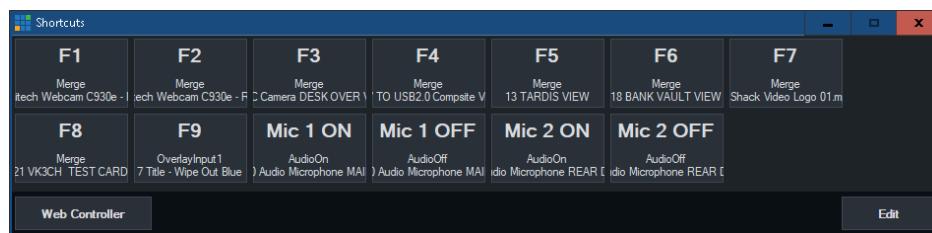
Quick shortcuts are best when time is short.

Keyboards are cheap so you could dedicate a labelled keyboard for vMix if you covered all the keys. I have stick on labels on assigned keys, but can still see the key function for typing documents etc.



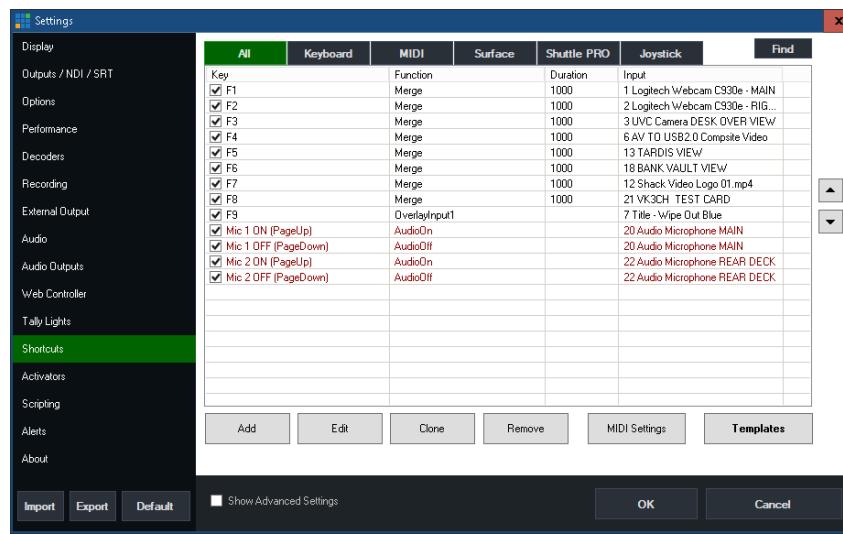
Shortcuts on keyboard, these are an evolving process

Yes... the keyboard is very grubby, it has been in service for 12 years



vMix can display your assigned keys, this can be saved or printed for reference

As an example I found that I was allowed to assign the Page Up key to have audio on for more than one microphone input, so Page Up opens audio for both the main microphone as well as the rear deck microphone. Page Down mutes both microphone and rear deck microphone.



Shortcuts Settings in vMix

I did not use the keyboard for shortcuts very long, as I later purchased a Corsair 10GAT9901 Elgato Stream Deck XL. This is a far superior method of controlling vMix with ease.

## KEYBOARD vMIX CONTROL FROM OUTSIDE

With the 4 Port USB to Ethernet Hub outside with some spare ports, the idea of another keyboard outside when required to control vMix was thought of. I wondered if two keyboards was OK to use.

I tried it and all the assigned short cut keys worked fine. I had the XYL watch the screen inside as I pressed the keys outside and she confirmed all the changes. Audio can also be toggled to mute and un-mute. So full control of vMix can be done outside without having to run back to the shack room to make changes.

I wanted the keyboard on the table so a five meter USB extension lead was added and the keyboard, being low rate serial data did not mind the extra USB lead length.



Now that it was tested to work the USB lead was neatly run underneath the decking floor to the table. The USB plug end can be available whenever I operate outside.



The USB keyboard plug next to the table



Last USB port left, for webcam on a tripod

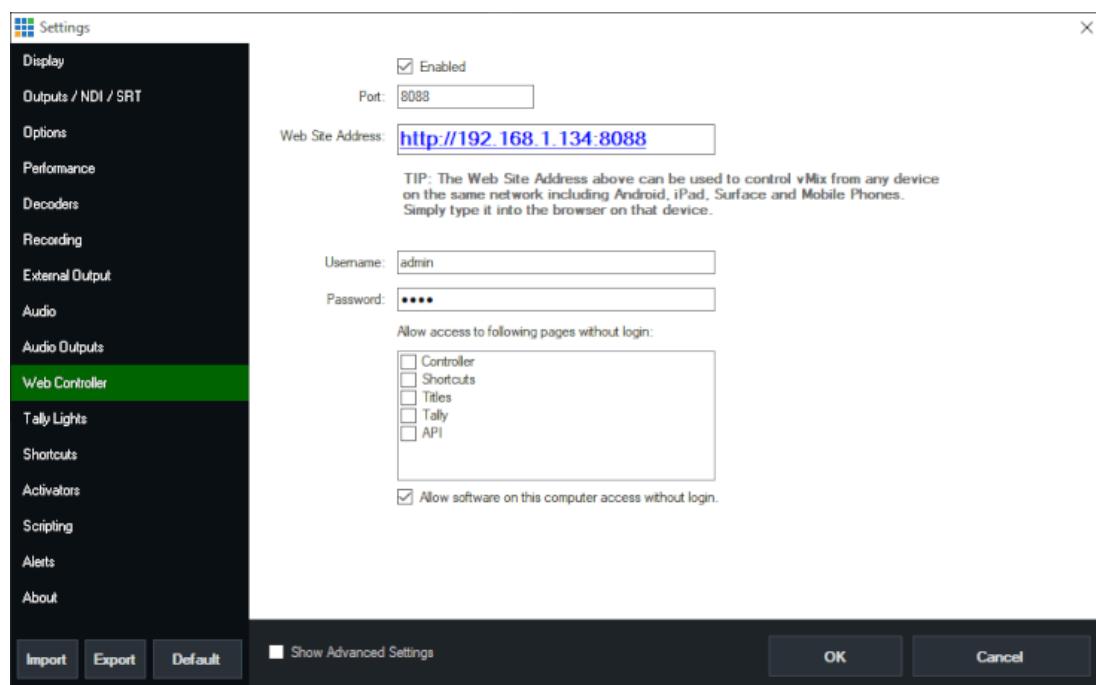
## CONTROLLING vMIX REMOTELY

Outside on the back deck I have power control of the SR-Systems Transmitter. With a switch it can be suspended to stop transmitting without having to run back to the shack.

vMix can do so much more remotely.

vMix allows you to control your production via a device that's connected to the same network as your vMix computer, done through the vMix Web Controller.

All you need is a device that has a web browser and is connected to the network. That means you can use tablets or a Smartphone with a web browser such as an iPhone.



### The Settings

Firstly, open up the settings section of vMix and click on the vMix Web Controller tab. Tick the top box to enable it. The default port for use is 8088. Only change this if you're an advanced user and understand network protocols. You can add a password for access and choose whether certain pages can be accessed without login.

Then all you need to do is grab your device and enter the Web Site Address into the browser. You're then able to control your production right from your phone or tablet.

### The Interface

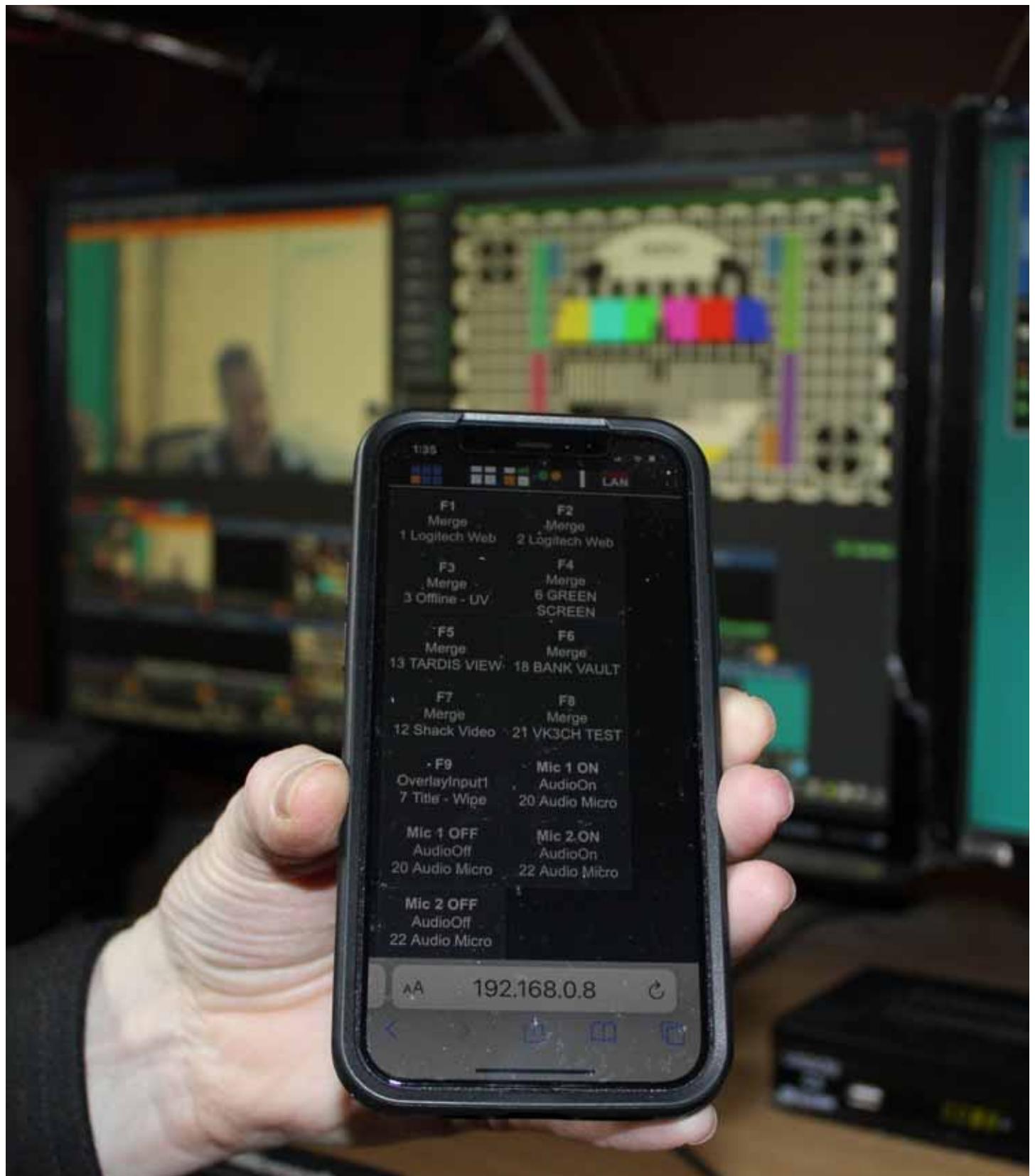
The vMix Web Controller interface is a compact version of your actual vMix interface. It is compact so that it can be used on even the smallest of Smartphone screens. The interface has 4 different screens- Shortcuts, Controller, Tally Lights and Titles. These can be changed by clicking the icons along the top.

The vMix website has more details and tutorials on how to set it up and use it.

I am yet to play with it but most of my backyard sessions are simple and not much switching is required. But you could live stream a full professional show of anything.

## V MIX FULL CONTROL VIA MOBILE PHONE

Controlling vMix via my mobile phone took about a minute to setup and worked perfectly. Now I have control over changing cameras, titles and station ID, audio switching and muting. So no need to go back to the shack at all when doing an outside broadcast production.



## TURN YOUR iPhone INTO A WEBCAM FOR vMIX ~ OR ANY OTHER APPLICATION

There are a heap of applications on the web that can do this, some are crap, some want money, some are limited in features and some are probably viruses dressed up as good software. After a lot of reading and watching YouTube videos I selected EpocCam Webcam for Mac and PC (iOS).

EpocCam was first published in the app store almost a decade ago, but has really gotten its shine in the last year. This app from Elgato (now owned by Corsair), helps you use your iPhone as an HD webcam and microphone on both Mac and Windows.

Once you've installed the corresponding drivers, EpocCam will allow your phone to be recognized as an optional webcam within apps like Zoom, Microsoft Teams, and more. You can connect your phone to your computer via either Wi-Fi or USB and EpocCam will make sure your computer recognizes it.

I tried it and I had to reboot both my iPhone and PC, but after that, perfect performance.

The app on the App Store is a free download. I first used my USB lead but the iPhone connects via Wi-Fi and you can wander around the house and have video sent to your PC. One less USB port used via Wi-Fi.

They warn you that with video it sucks the power from your iPhone battery quickly, so your use time may be limited, I have not tried it out that long to know, depends on the health of your iPhone battery and age.

Once I installed the app and PC driver, I started vMix and found it as a choice of camera input called EpocCam Camera, with video default settings of 1920x1080 YUY2 at 50 frames per second.

The free version does not include the iPhone microphone, nor can you zoom.

The free version has no wide screen you get the usual iPhone smaller rectangle view.

Also the free version has the Elgato watermark at the bottom of your streamed video, but it's not too intrusive. But for handy close up views of something in the shack it is a quick easy way to get video of that.

You can toggle front and rear iPhone cameras on the free version, handy close up views of items in the shack. It has filters on the free version, adds effects to your video, which I will never use. Paid version is USD 13.99



A high quality “webcam” video camera, but limited to the iPhone screen output – but free to setup

## USB MAXIMUM CABLE LENGTHS

### Maximum length of USB 2.0 cable:

The 2.0 specification limits the length of a cable between USB 2.0 devices (Full Speed or Hi-Speed) to 5 meters (or about 16 feet and 5 inches). In other words, you cannot just connect a bunch of extension cables together (like taking a 6 foot cord and extending it with 4 other 6 foot extension cords) and run them 30 feet to another room. However, you can connect a 6 foot cable with a 10 foot extension cable for a total of 16 feet, which is below the maximum cable length for USB 2.0.

### Maximum length of USB 3.0 / USB 3.1 cable:

The 3.0/3.1 specification does not specify a maximum cable length between USB 3.0/3.1 devices (SuperSpeed or SuperSpeed+), but there is a recommended length of 3 meters (or about 9 feet and 10 inches). However, the biggest limitation to the length of the cable is the quality of the cable. Results may vary, but with a high quality cable you should be able to go beyond 3 meters. However, to ensure you achieve the best results possible, use an active cable when going more than 10 feet (3 meters).

## vMIX DESKTOP

Playing around with vMix is the best way to learn.

As long as you save settings along the way and save different formats you can always go back to a working setup you want. I try various things and if I don't like the result I don't save it.

I dragged the individual input squares of cameras and found you can rearrange them and the dedicated assigned number auto changes in the setup.

This means that cameras can be grouped together, then logo intros, then audio inputs, whatever you want in the arrangement that suits you.

This is really going to make things more logical, as I thought I was stuck with the camera numbers in the order that I plugged them in and they were discovered by vMix.

Instead of a few months to learn it might just be a few weeks after all.

## WEBCAM RESOLUTION QUALITY DIFFERENCES

Installing the desk view webcam using a cheap UVC camera the desk looked fuzzy.

Rotating the lens to focus still did not give a good picture.

I found a cheap webcam from MSY Computers that was only \$19.

They market it as Rotanium (FHD01) 1920x1080P 30fps Full HD USB Web Camera.

For \$19 I was expecting it to be pretty crappy but for the price I got one to try.

It gives a similar resolution looking picture as the UVC webcam, nowhere even SD that's for sure and grainy. But given I can only transmit SD it will do. vMix loads it with generic settings of 1920x1080 MJPG.

I will not be showing things on my desk all that often, no point putting a \$100+ Full HD webcam just for that.



The main shack webcam points where I sit.  
The cheaper webcam points down to the table.

Projects and components and printed items can be put on display by switching to the webcam pointing to the table, which has been dubbed "Table Cam".

## SHACK OVERVIEW WEBCAM

One of the UVC webcams was installed as an over view of the shack operating table. It was mounted on top of the bookshelf looking towards the shack radio table. As this view will not be used that often the cheaper UVC webcam was good for this job.

Webcam mounted above the bookshelf



Room Operating Table View



A screen capture of the room overview webcam. It is a bit grainy but for occasional transmission it will do.

The computer visible on the right on the floor, is the old one, being 12 years vintage, now since retired  
NEVARC NEWS Vol 09 Issue 08 2022

## vMix SLOWLY TAKES OVER

With the HDMI to CVBS device feeding the SR-Systems Transmitter working properly, it was time for some handing over from analogue to vMix control for more video inputs.

The rear yard cameras were the next to switch over.

The hardest job was cable tracing at the rear of the equipment on the shack table.

Eventually the West Deck Video Cable Feed was located and removed from plug 5 of the Digitech Video Switcher and plugged into the USB 2.0 to Video Capture Device.

Selecting that input on vMix had the rear yard dome cameras now feeding into the USB 2.0 to Video Capture Device to vMix. All 6 dome cameras can be switched locally out on the rear deck.

Audio was supplied to the USB 2.0 to Video Capture Device from the plug in microphone jack at the rear deck.



The rear deck six dome camera outputs now all processed by vMix



With vMix using webcams the original shack main dome camera can go outside, or on a tripod

## GREEN SCREEN

A chroma key green screen background is used as a backdrop in video and photography. They enable you to separate the subject from the background and replace that green screen with a new background.

If you've ever watched a superhero movie where they fly through the sky or scale huge buildings, then you've seen a chroma key green screen at work. Many TV shows and films rely on a green screen to create special effects and virtual backgrounds.

It's called a green screen for a simple reason - it's a large backdrop screen that is green! It's part of a process that is known as chroma key. This process allows TV producers and filmmakers to superimpose their subjects on any kind of virtual background, so the possibilities are endless.

Chroma keying singles out a particular colour in an electronic image (usually the green screen), and special software then make that colour transparent to allow any background you choose to show through where the green screen was.

Green tends to be the popular colour of choice for chroma key backgrounds because it generally has a lot of contrast with the subject's skin and clothes. This makes it easier to isolate only the green colour to make it transparent.

There are different options for green screen backdrops, so you need to choose the one that is right for you and the kind of video you want to create.

### Chroma key green muslin cloth screen

Cotton muslins are reusable, so are a good long-term solution. They're great for streamers, who want to block out their background, but they're not the best choice for those who want to do messy shoots as they will need washing afterward.

I don't think I will be making a mess on Amateur Television, well not unless I decide to try and do a cooking show in the shack! So I ordered a green screen muslin cloth.

The hardest part is hanging it up.

My shack also has a 90 degree corner and I was worried about shadows effecting the quality of the green screen. Lighting will be important and some experimentation will no doubt happen.

### Chroma Key Green Pull Up Backdrop

Green screen pull-up backdrops for Video are a go-to for many streamers because of how easy they are to set up and pack down after use. Its retractable design means all you have to do is pull it up when it's time to start your streams and retract it into its hard protective case once you're done for easy storage.

I may get one of these, see how the cloth screen works first. But I cannot find retractable ones wide enough. Pull-up backdrops are easy to store, but cost a lot more than a piece of cloth.

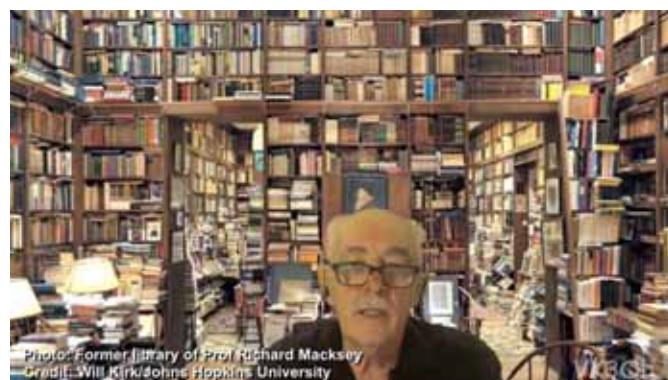
They are not as big as cloth so I would have to sit right behind the pull up screen and restrict the widescreen function on the camera in use.

Some of the Melbourne Amateur Radio Television Group are doing some really cool things with green screens. I have a steep curve to attempt to match what some are doing, they must spend a lot of time on preparation. Lighting is important because if it is not right their hair seems to dazzle and appear and disappear as they move about in their video production.

Doing chroma key green screen background filming will be another thing to learn especially as you are doing everything on the fly including controlling vMix and trying to concentrate on your video production.

## GREEN SCREEN TRICKS OF THE MELBOURNE AMATEUR RADIO TELEVISION GROUP

These are some of the stills of presentations that some of the Melbourne Amateur Radio Television Group get up to and this is just on the weekly Tuesday night Net, so imagine what they will do for the 10<sup>th</sup> DATV QSO Party in August.



All of these videos done behind a green screen background, very clever...

## INSTALLING A GREEN SCREEN

The green screen muslin cloth arrived in the post and yes it was just a big length of cloth.

A method to mount it was required, clips are quick and easy, but I have none.

Another way is to sew one end and run a length of pipe through it and suspend it like a curtain.

The first job was to measure each wall to see how it was going to be placed for the best result. I had no idea what was the best way to place it until you film your first green screen production.



The next problem is where to put the screen. The webcam radio room view is a square area. A green screen would have to go around the curtains and the bookshelf to fully cover the area that the webcam can see.

Another way is to zoom in and see less area. This may affect the presentation of any trick scenes but hopefully the smarts in the vMix software can get around that.

So I decided to install the green muslin cloth over the bookshelf and just use the main table webcam for green screen filming.

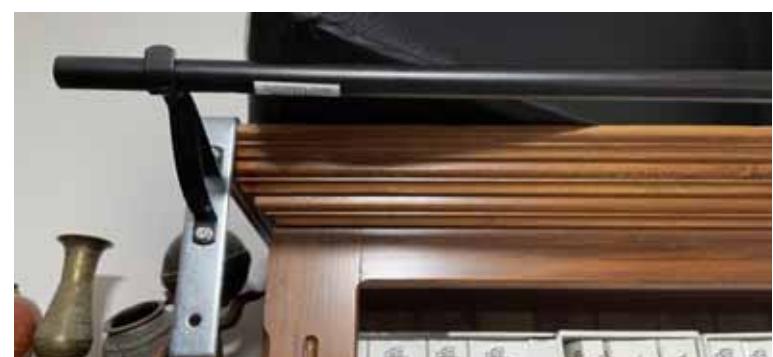
A thin curtain rod and some curtain rod brackets were purchased. The only hassle was having to drill the nice wooden finish on the bookshelf to mount the green muslin cloth.

A better idea was to get a right angle bracket and mount that on the top where screw holes will not be seen.

The brackets were mounted on the top of the bookshelf, so no screws can be seen.

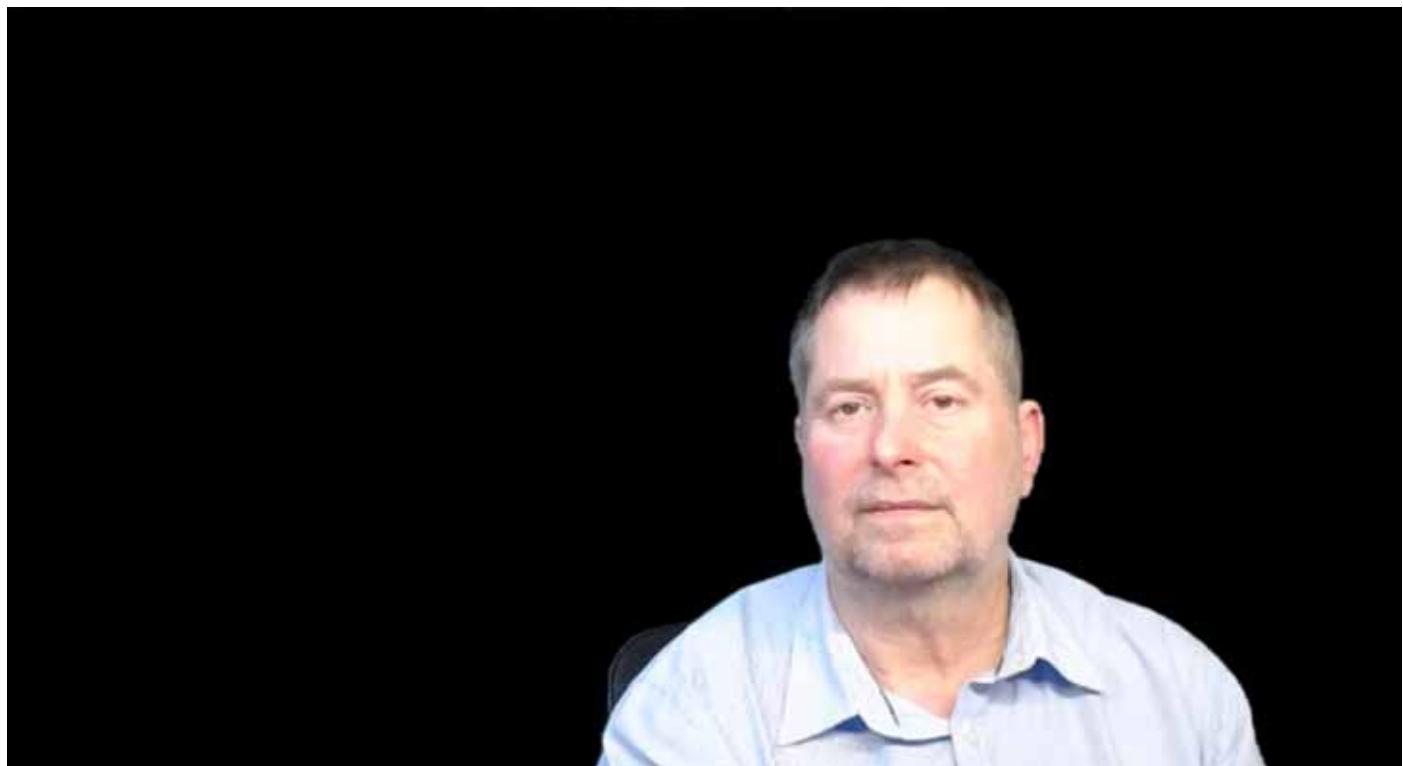
If I ever remove the brackets no damage seen. The green cloth will hide the brackets.

Of course access to the bookshelf is lost while the green cloth is up, but that is the trade off without the room size to have a dedicated screen.





The green muslin screen hung in front of the bookshelf



Background removed ready to put any other picture or video in the background  
This good result, even despite the fold lines in the cloth, getting the fold lines ironed out must be even better

## GREEN SCREEN SUCCESS

vMix chroma keying (the green screen trickery) I have found is very tolerant of my shack lighting. No fancy lighting required onto the green muslin cloth at all.

If you move too close to the cloth and cast a shadow then that is noticeable as a kind of greyish mist.

The cloth as seen in the photo, on the previous page, with the fold lines visible and a little bit of ripple are not picked up as flaws in the vMix chroma keying effect.

It will take some time to see if daylight or strong afternoon sun affect anything, but since the Melbourne Amateur Radio Television Group Tuesday Night Net is at night, the shack lighting will be the only lighting source to deal with.

I did not have to change anything, more time and cash saved, good stuff.

My only problem is that I need to zoom in a little so the webcam is only in the field of the green cloth. So another dedicated webcam in the right place will be used for that, time to order another Logitech C930e. I grabbed the one off the tripod as a test.

It is early days and I may find better chroma keying settings, but vMix suggest 'option 2' and that really was all I needed to do. They have tutorials on YouTube and they get right to the point and give reasons for the selections they make.



A random photo of a bottle shop found on the internet, with vMix placing my image over the top  
I am in the radio room at home drinking a glass of Rosé in front of the green muslin cloth in reality

Now to make the image the right size to appear more realistic to the chosen background still or video

I am going to have so much fun with vMix  
The vMix licence fee is starting to look like it is worth paying for

## CAPTURING COMPOSITE VIDEO AND SOUND INTO vMIX

With the decision to retain both digital and analogue video, I still wanted to have vMix process composite video since there are six composite video dome cameras outside and one in the shack. I found a USB Video Capture Device on the internet for \$59 posted.

The backyard camera feed



USB Video Capture Device



It comes with a simple manual but it's just plug and play, the specifications say composite video gets captured. The install CD was not required it just auto installed.

### Specification

|                            |   |
|----------------------------|---|
| <b>Item Name</b>           | USB 2.0 Video Capture   |
| <b>Interface</b>           | USB 2.0 standard  |
| <b>TV System</b>           | PAL, NTSC   |
| <b>Recording Format</b>    | MPEG2 for Video   |
| <b>Converting Format</b>   | Video: Apple TV, iPhone, iPod classic, iPod nano, iPod touch, WMA. ASF, MPEG1, MPEG2, WMV |
| <b>Input</b>               | Composite Video(RCA), S-Video(miniDIN 4pin), Audio L/R(RCA)                               |
| <b>Resolution</b>          | NTSC 160×120 ~ 720×480, PAL 160×120 ~ 720×576   |
| <b>Rate</b>                | NTSC 30fps, PAL 25fps   |
| <b>Power Supply</b>        | USB Bus   |
| <b>Consumed Power</b>      | ≤ 1.5W  |
| <b>Editing Software</b>    | Video: ArcSoft ShowBiz 3.5  |
| <b>Dimension / Weight</b>  | 90(L)×44(W)×28(H)mm / 72g   |
| <b>Cable Length</b>        | 80cm(USB), 7cm(Video/Audio)   |
| <b>System Requirements</b> | One available USB 2.0 port  |
|                            | Pentium4 CPU or above   |
|                            | 512MB RAM or above  |
|                            | Graphics card supports DirectX 9.0C   |
|                            | 1GB free HDD space  |
|                            | CD-ROM for installation   |
|                            | DVD-R/RW for burning DVD  |
|                            | Windows XP, Vista, Windows7/8/10  |
|                            | Video Capture device, Software CD(includes driver, application and manual)                |

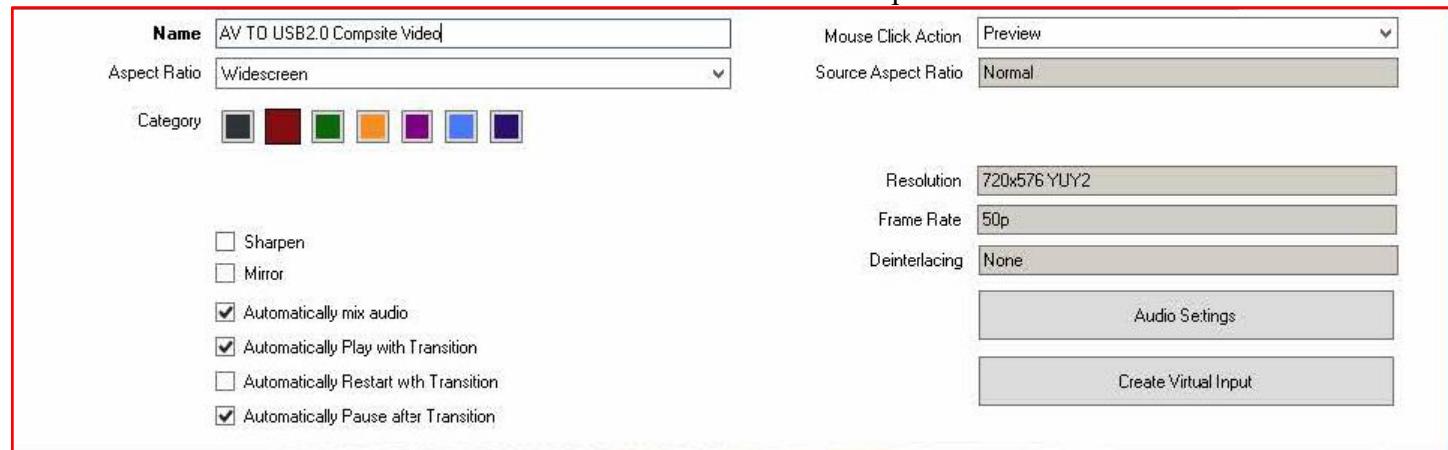
So the USB Video Capture Device was plugged in and with the correct selected resolution in vMix the composite video with stereo sound output from my camcorder was ready to use. I initially had doubts the thing would work, but it is far cheaper than a composite video capture card inside the PC.

A vMix setting of 740x576 YUYU2 with a frame rate of 50 gave a very decent picture. Not every setting works, but vMix lists the valid ones in the error code if a non viable setting is picked.

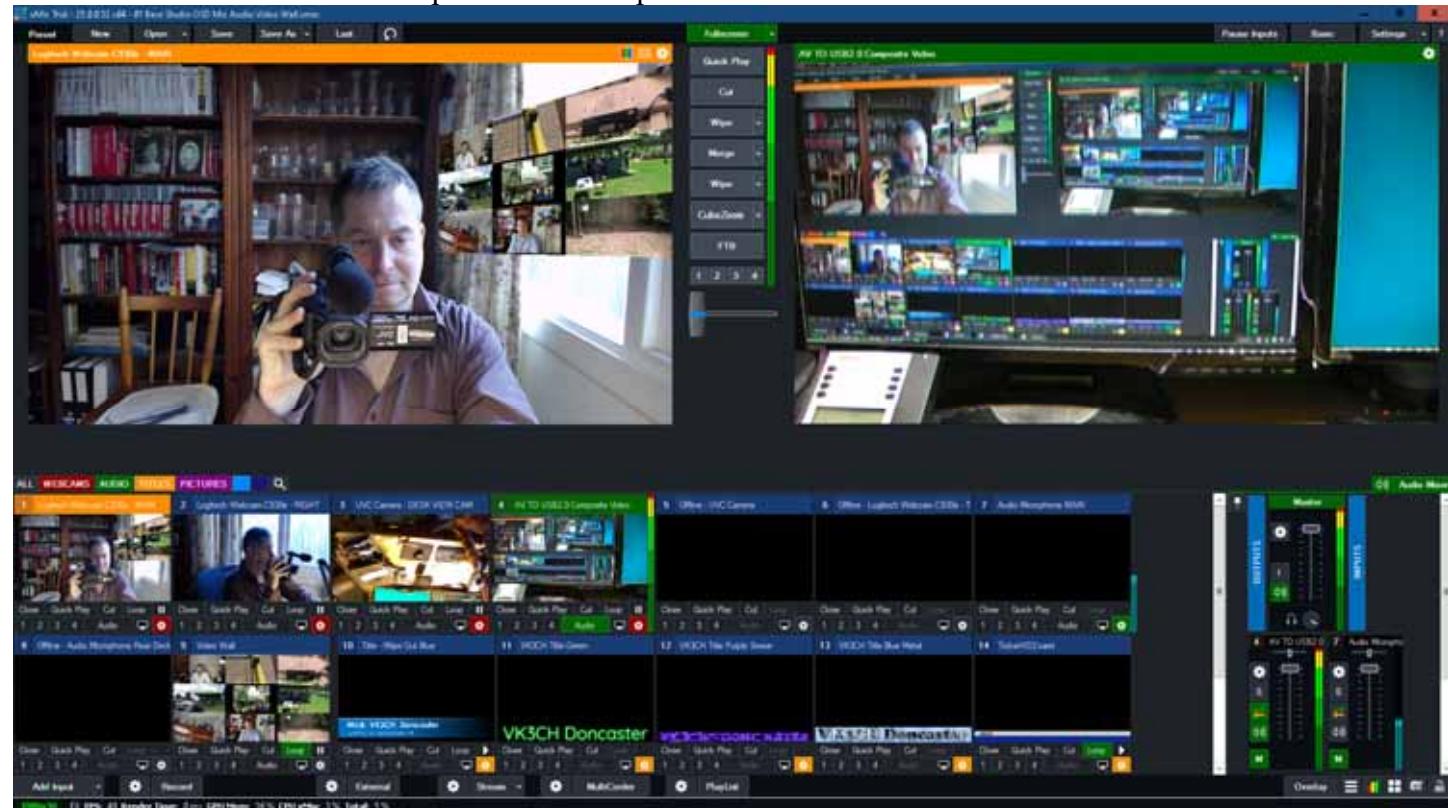
This input as a camera in vMix is called AV to USB2.0  
So it was selected and named Composite Video.

As with any vMix camera input, the audio gain and equalization can be adjusted, which was done. The audio equalization was set identical to the digital audio inputs.  
The audio gain needed to be cranked right up to sound equal to the digital side of things.

vMix details of the AV to USB 2.0 Capture Device



The composite video output of the camcorder as seen into vMix



The camcorder was removed and the composite video leads were piggybacked onto the main composite video output of the six way video switcher that feeds composite video into the SR-Systems Transmitter. Now I have the choice of using analogue video the old way, with the PC not even powered on with no vMix, or select the composite video input to vMix and still use any dome camera with all the vMix editing features.

The install CD AV to USB 2.0 Capture Device came with bundled video editing software but it looks quite basic, I have far superior video editing tools on my PC already.

I am really pleased with the results, now vMix can be used to its full potential with ANY camera I select.

The info on the CD says;

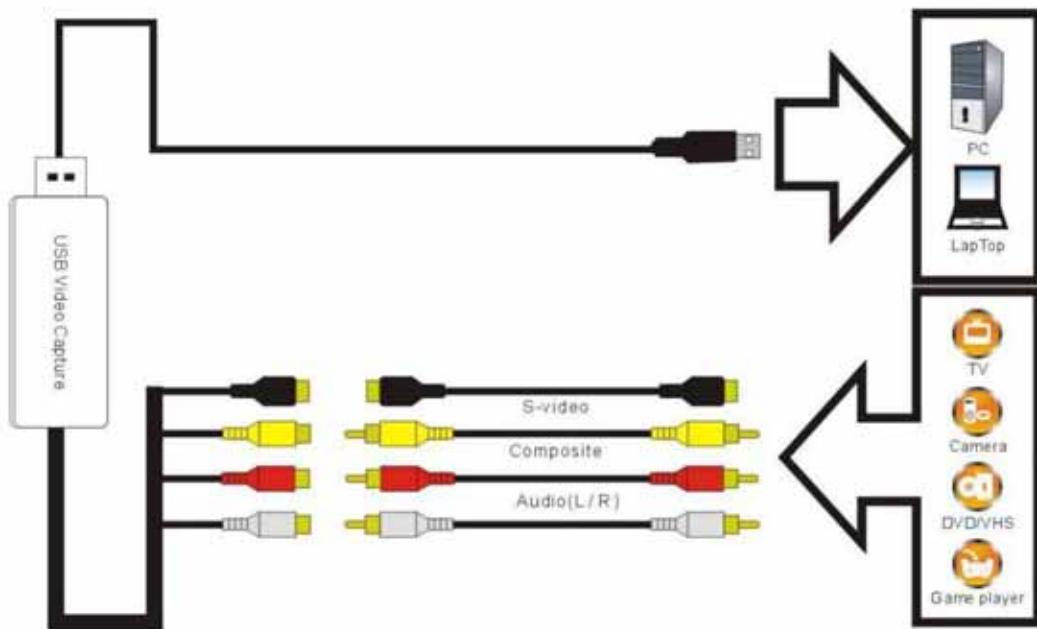
*The USB Video Capture, it can capture High-quality video and audio file directly by USB 2.0 interface without sound card. And edit them, burn DVD disc, convert them, and send them to your iPod, PSP, or Mobile Phone. And upload the video to YouTube too.*

*The USB Video Capture, it can capture High-quality audio file directly by USB 2.0 interface alone. And edit them, burn Audio CD, or MP3 CD.*

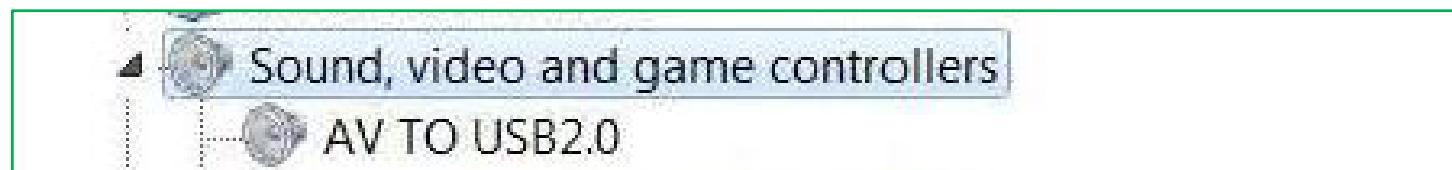
*Now you need to plug the USB Video Capture into USB 2.0 port.*

*Click then Device Manager. In the Device Manager click on the “Sound, video and game controllers” correctly you should see the “AV TO USB2.0”. This collection adopts the installation method without drive. Drive installation completed.*

## Connection Guide



When installed it did look just as they said in Device Manager as “AV to USB2.0”



## USING THE USB VIDEO CAPTURE DEVICE

Now that the USB Video Capture Device was working a way to use it and wire it into the video cable jungle was the next job.

I thought I could go into the input of the basic stamp On Screen Video Text Maker.

But no, it got into some sort of loop and a crazy looking green void was all that was seen.

So the only way the USB Video Capture Device can be used is I front of the video feed of what composite video I was trying to use.

As the shack campsite video dome is only 300mm apart from the right side shack webcam I figured that input can remain unchanged.

The backyard dome cameras are all switched into a single cable feed back into the shack.

So it was this cable run that required the USB Video Capture Device in front of that so the video can be ported to vMix when not being used in straight analogue mode.

Getting access to the cables at the rear of all my devices in the shack is a difficult job.

I need daylight and torches to see what cables I am grabbing, it is too easy to take out the wrong ones and then have to trace to where they are supposed to go.

This is why is document every cable run and termination.

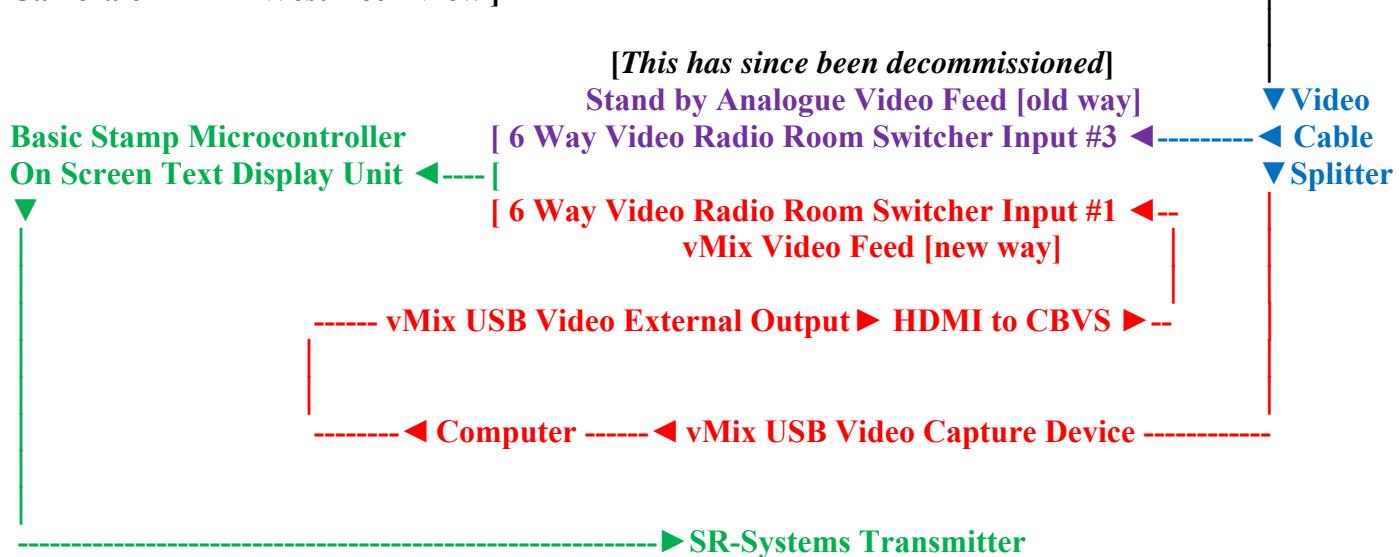
Years from now I will forget why thing are arranged as they are.

## OLD VIDEO SWITCHING ARRANGEMENT ~ PRIOR TO JUNE 2022

### Rear Yard

#### Dome Cameras

Camera 1----- Table ]  
Camera 2----- West Fence ]  
Camera 3----- Mast BBQ ]----- 8 Way Video ----- Cable feed to shack ►-----  
Camera 4----- East Deck View ]----- Switchbox  
Camera 5----- BBQ Overhead ]  
Camera 6----- West Deck View ]



**Rear Yard**

**Dome CVBS Cameras**

Camera 1-----► Table  
 Camera 2-----► West Fence  
 Camera 3-----► Mast BBQ  
 Camera 4-----► East Deck View  
 Camera 5-----► BBQ Overhead  
 Camera 6-----► West Deck View

**CVBS**

**8 Way Video  
Switchbox**

**Rear Yard Video Feed  
for CVBS Camcorder** ►-----

**Shack Dome CVBS Camera** ►---

-----◀ **East Deck CVBS Camera**

**6 Way CVBS Video Radio Room Switcher**

**Video Capture Device**  
 vMix USB Input <---CVBS to USB 2.0--->  
 vMix USB Input <-----Shack Webcam Main----->  
 vMix USB Input <-----Shack Webcam Table Cam----->  
 vMix USB Input <-----Shack Webcam Green Screen----->  
 vMix USB Input <-----Shack Webcam Right----->  
 vMix USB Input <-----Shack Webcam Overview----->  
 vMix USB Input <-----Shack Webcam on Tripod Occasional Use----->  
 vMix USB Input <-----Shack Webcam iPhone12 Occasional Use - Wi-Fi----->  
 vMix USB Input <-----Outside Deck Webcam on Tripod Occasional Use----->

**COMPUTER**

vMix Program

vMix HDMI Output-----► **HDMI to CVBS Converter**-----► **SR-Systems Transmitter**

## vMix TOTAL CONTROL

With vMix now doing all video and audio switching, the amount of redundant cables from both under the desk and to the SR-Systems Television Transmitter and also the (OSD) on screen text display (Station ID) micro controller were recovered. Reclaimed AV and Audio cables is quite a lot.

I hung them all up behind my room door, in case in ever need them for outside or portable operation. I will have to remove all the labels from them.

Separate to these cables were a few HDMI cables, also recovered.

This is why I document all the station changes, years from now I will wonder “*What did all these cables do?*”



## RUNNING THE VK3RTV 8.00 PM TUESDAY NIGHT NET

Neil VK3BCU usually runs the VK3RTV Tuesday Night Net.

Otherwise Ian VK3QL has often been a stand in when Neil was not available along with others.

Now others have been encouraged (or dobbed in) to have a go at being VK3RTV Net Control.

Given you are keeping order and also still running your own television production things can get a bit fast paced at times. But everyone now knows the best methods and over 100 Tuesday night Nets have been done.

Ian VK3QL also live streams the VK3RTV Tuesday Night Net and then has it on his YouTube channel to watch on demand later. The last couple of months is available, just search VK3QL and you will find them.



In the bank vault, which is a still shot (photo)



Hitching a ride on the TARDIS, which is a looping video, compete with TARDIS hypersonic engine sound



The reality, just chroma key trickery with a green screen, even with the fold lines it still works well vMix software does a very good job in the room lighting conditions, which is not anything special

## I'M NOT PARANOID AND WHO WANTS TO KNOW?

With so many webcams in use with the Amateur Television setup the concern that you may get spied on is real. While I don't think I am celebrity status you never know what the internet will serve up if your unlucky.

Some webcam covers were found online, but they only fit the Logitech webcams. The other plain shaped webcams will need more research to find covers for them.



Now you see me



Now you don't



The other webcams with the covers open fitted



The odd shaped cheap webcams, still need to find covers for them online

## STREAM DECK CONTROL OF vMIX ~ USING THE ELGATO STREAM DECK XL

With video productions using a mouse presentations can get clumsy at times.

I decided to invest in a Corsair 10GAT9901 Elgato Stream Deck XL, a unit with Advanced Stream Control with 32 customizable LCD keys.

The specifications say,

*Enhanced live production: Easily control your favourite tools and platforms*

*32 customizable keys: Instantly trigger unlimited actions with a tap. Interface: USB 3.0*

*Powerful integrations: Elgato Game Capture, OBS, Streamlabs, Twitch, YouTube, Twitter, Mixer, Spotify, Philips Hue, Vmix, VoiceMod and more*

*One-touch operation: Change, scenes, launch media, switch cameras, tweak lighting, adjust audio, post tweets - anything*

*Visual feedback: know that your command has been executed*

*15 LCD keys poised to launch unlimited actions eliminate the need to map and memorize keyboard shortcuts.*

*One-touch, tactile operation lets you switch scenes, launch media, adjust audio and more, while visual feedback confirms your every command. Traditionally this level of control was exclusive to mainstream entertainment broadcasters.*

*Start streaming. Adjust audio levels and mute your mic. Tweak lighting. Switch cameras. Apply lower thirds. Change scenes. Activate your intermission screen. Trigger onscreen videos, images, GIFs, and soundbites. And wrap up your livestream with your signature outro. All of this can be done with the Stream Deck XL.*

*Forget keyboard shortcuts and embrace hotkeys. Launch apps and websites, open folders, access pre-composed texts, even streamline your video editing, graphic design, and audio production workflow, all because you know where your macros are.*

*Simply drag and drop actions onto keys and assign ready-made icons or use your own. Are 32 keys not enough? Turn keys into folders to amass as many actions as you want.*

*Why tap multiple keys - to start your intro scene, tweet that you're live, and post a welcome message to your chat - when one will do it all? Assign unlimited actions to a single key and launch them all with a tap. One by one separated by intervals. Or together, simultaneously.*

Elgato Stream Deck will get power from your Mac or PC, via the USB cable that is attached to it. If you want to add a USB extension cable then only certain lengths of cable will work.

A 1 meter long USB extension cable (3.28 feet) or shorter is an ideal length, to make sure that Elgato Stream Deck gets enough power from the USB connection.

If you want to try a longer cable, then 2 or 3 meters may work, but Elgato have not certified those lengths.

The main issue is that bus-powered USB devices can only work with certain cable lengths - if the cable gets too long, then not enough power or data is transferred.

I will only be using it for vMix, but it can provide shortcut macros for many computer applications.

It may be possible to control vMix via the Stream Deck from the backyard deck via the Ethernet extended USB Hub back to the radio room, further testing will be tried to see if that is possible.

But a standard computer keyboard will run shortcut links in vMix from the backyard.

## STREAMDECK WORTH THE CASH

Only after a day I wondered how I did proper presentations without a Streamdeck.

It just makes everything faster and always correct exactly as you programmed it.

So the important bit is programme it correctly and test it all prior to your production.

I really like how you can customise the keys and how they look, takes up very little space on the desk.

Having your microphones indicating which ones are 'live' is very handy and will save awkward mistakes.

No more mucking around with the mouse in a screen full of icons when you are trying to chat.

No doubt many shortcuts will be tried and deleted until I get it exactly how I want it.

It is very easy to learn and lots of videos to watch to learn more.

Lots of customised icons for your keys, all for free if you want them, hundreds of them.



The Streamdeck XL loaded up with shortcuts

Top blue are the webcams, green are my different outros, the live microphones glow red when selected. You can create sub folders to have layers of another 31 keys underneath that, so unlimited possibilities. The Streamdeck XL can also do macro shortcuts for many other computer applications, not just vMix

## STREAMDECK GOES PORTABLE

Being infrequent low rate serial data, I figured the Streamdeck would be like a keyboard and work from the backyard, over the USB to Ethernet cable, back to the radio room.

I did not want the hassle of unplugging the USB cable that was neatly routed to the computer.  
So another cable was found, it has a different connection to the Streamdeck and a USB plug the other end.

The Streamdeck does not like the extension USB cable to the outside table.  
The keys do not light so losing too much power at that cable length.

Plugged direct into the USB outside Hub it worked perfectly.  
So full vMix control from the rear deck can be done via the Streamdeck if needed.

When I plugged it in it auto booted and found the vMix application running and displayed the assigned keys within seconds, ready for a command.

The toggled colour buttons for Microphone status, live or not, also work correctly over the USB Ethernet.



The Streamdeck operating outside

Given a keyboard works next to the table without fuss the Streamdeck will probably get little use outside.  
A \$10 keyboard can get BBQ food splashes on it and I don't care, but I will look after the \$369 Streamdeck.

My only complaint about the Streamdeck is it slides about when you press the keys.  
You can use it without the cradle, but then the writing on the keys is hard to read at that lower angle.

So I used some double sided tape on the cradle bottom to keep it secure on the table.  
The double sided tape is very thin so easy to lift it off and scrape the old tape off if it ever needs to be moved.

The Streamdeck can be removed from the cradle so if the cradle is stuck down that's not really a problem.

## READY FOR THE 2022 10<sup>th</sup> DIGITAL AMATEUR TELEVISION QSO PARTY

Whenever I say “*it’s all done I don’t need to change anything*” the XYL never believes me. I am quite sure the Amateur Television side of things in the shack is how I want it now. Of course new ideas get into your head, but a lot of progress has been made over the last month.

There is always something new with vMix and tinkering is the best way to learn. But I save my settings in case I do something to mess it up, which has been many times, great to be able to backtrack to a working production.

The only problem I see is one day running out of spare USB ports. But an external powered USB Hub should solve that. An external powered USB Hub would only be good for low data throughput items. These would be serial data, audio, printers etc.

If I get bored I can always try to learn Adobe After Effects v5, for some fancy station ID 3D animated titles, the book is only 359 pages to read.

But I do have my eyes on a pull down green screen that would be neater than the current hanging cloth screen.

Whatever else I decide to add must be ready by the end of August.



On the Tuesday Night Amateur Television Net, long before the installation of the green cloth screen  
Now with the chroma keying green screen muslin cloth our productions will get more interesting  
The addition of the Stream Deck XL will make presentations more orderly and less clumsy... I hope...

~Mick VK3CH

# COLLINEAR ANTENNA FOR VK3RWC



New collinear antenna for VK3RWC on the way to Mount Bruno.

It may take a while to get there though.

It was hit by lightening and was full of water, so it requires some attention first.

It is 7.6 metres long and when mounted on the tower it should hopefully make about 10 db improvement.

Phil  
VK3ELV

# Flood response initiative

It has now been several months since the NEVARC created a flood recovery for amateurs. Fortunately for those Amateurs in the flood affected areas, they all own houses on hills (who would have thought given our hobby). We had some very good feedback, and many thanks for the offers, however nobody needed our assistance. In a way this is a good thing.

We had some other clubs and individuals add to our fund as well, being:

Fists inc  
RASA  
WA Newsline  
VK3QB; and  
VK6AXB

Combined, we raised \$3000 for the cause.

In line with our policy document, we have returned the monies to the stakeholders and have closed our response.

As a club, we wish to thank all those who contributed to the cause. Should the next natural disaster required it, we will all be there front and centre to offer assistance.

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## IT'S A DOGS LIFE

If you think amateur radio is going to the dogs, you're right - but those dogs are getting plenty of company.

The dog days of August will soon be upon us and so too will August 26th, known as International Dog Day. A number of hams around the world have decided to run with the pack by getting special event call signs and getting on the air to publicize the needs of abandoned and abused pets who have ended up in shelters - dogs as well as cats.

Amateur Radio NewsLine have revealed Hanz, YL3JD, will be operating CW from his shack in Latvia using the call sign YL 1 DOG starting on Monday the 22nd of August.

There are plans for other 'poochie' call signs to be on the air too, including PF 6 DOG, and PD 6 DOG.

International Cat Day is being celebrated on August 8th and on the 'cat walk' YL 1 CAT.

The list is growing but organizers are looking for even more operators to call QRZ on behalf of shelter animals. Visit the website [catsanddogsontheair.com](http://catsanddogsontheair.com) to get the details.

~WIA News

# Remembrance Day Contest

## 3th & 14th August 2022



### Rule changes in 2021:

1. Foundation Licence sections discontinued
2. Remote station operation is allowed.

Multi Op stns, please observe COVID restrictions in your area.

### Contest Introduction

This contest commemorates the Amateurs who died during World War II and is designed to encourage friendly participation and help improve the operating skills of participants. It is held on the weekend closest to the 15th August, the date on which hostilities ceased in the southwest Pacific area.

A perpetual trophy is awarded annually to the Australian state or territory with the best performance. The name of the winning State or Territory is inscribed on the trophy, and that State or Territory then holds the trophy for 12 months. The winning State or Territory is also given a certificate, as are leading entrants.

### Aim Of The Contest

Amateurs will endeavour to contact amateurs in VK call areas, ZL and P29 on all bands except WARC bands. Modes allowed are PHONE, CW and RTTY as per the era remembered.

<https://www.wia.org.au/members/contests/rdcontest/>

# Australia Ham Radio 40 Meter Net



7 Days a Week  
10am Local time  
(East coast)  
**7.100 MHz LSB**  
Approximately + or – QRM  
Hosted by Ron VK3AHR

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**NEVARC 2 Meter Net**  
**Net Control VK3ANE**  
*NEVARC Linked Repeaters*  
**VK2RWD, VK3RWO, VK3RWC**  
**Wednesday - 8.00pm**  
**Local time**

President, VK3VS, Matt  
Vice President, VK2VU, Gary  
Secretary, VK2BFC, Frank  
Treasurer, Amy Bilston



## NEVARC CLUB PROFILE

### History

The North East Victoria Amateur Radio Club (NEVARC) formed in 2014.

As of the 7th August 2014, Incorporated, Registered Incorporation number A0061589C.

NEVARC is an affiliated club of the Wireless Institute of Australia and The Radio Amateur Society of Australia Inc.

### Meetings

Meetings details are on the club website, the Second Sunday of every month, check for latest scheduled details.

Meetings held at the Belvior Guides Hall, 6 Silva Drive West Wodonga.

Meetings commence with a BBQ (with a donation tin for meat) at 12pm with meeting afterwards.

Members are encouraged to turn up a little earlier for clubroom maintenance.

Call in Via VK3RWO, 146.975, 123 Hz tone.

### NEVARC NETS

#### HF

7.100 MHz 7 Days a Week - 10am Local time

#### VHF

VK2RWD Wednesday - 8.00pm Local time NEVARC Linked Repeaters: VK2RWD, VK3RWO, VK3RWC

### Benefits

To provide the opportunity for Amateur Radio Operators and Short Wave Listeners to enhance their hobby through interaction with other Amateur Radio Operators and Short Wave Listeners. Free technology and related presentations, sponsored construction activities, discounted (and sometimes free) equipment, network of likeminded radio and electronics enthusiasts. Excellent club facilities and environment, ample car parking.

**Website:** [www.nevarc.org.au](http://www.nevarc.org.au)

**Postal:** NEVARC Secretary  
PO Box 8006  
Birallee Park  
Wodonga Vic 3690

**Facebook:** [www.facebook.com/nevicARC/](http://www.facebook.com/nevicARC/)



All editors' comments and other opinions in submitted articles may not always represent the opinions of the committee or the members of NEVARC, but published in spirit, to promote interest and active discussion on club activities and the promotion of Amateur Radio. Contributions to NEVARC News are always welcome from members.

Email attachments of Word™, Plain Text, Excel™, PDF™ and JPG are all acceptable.

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Please include a stamped self-addressed envelope if you require your submission notes returned.

Email attachments not to exceed 5 Mb in file size. If you have more than 5 Mb, then send it split, in several emails to us.

Attachments of (or thought to be) executable code or virulently affected emails will not be opened.

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While we strive to be accurate, no responsibility taken for errors, omissions, or other perceived deficiencies, in respect of information contained in technical or other articles.

Any dates, times and locations given for upcoming events please check with a reliable source closer to the event.

This is particularly true for pre-planned outdoor activities affected by adverse weather etc.

The club website <http://nevarc.org.au> has current information on planned events and scheduled meeting dates.

You can get the WIA News sent to your inbox each week by simply clicking a link and entering your email address found at [www.wia.org.au](http://www.wia.org.au) The links for either text email or MP3 voice files are there as well as Podcasts and Twitter. This WIA service is FREE.